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Chapter 2: Rules for Minimum Standards for the Wyoming School Buses

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CHAPTER 2

RULES FOR MINIMUM STANDARDS FOR WYOMING SCHOOL BUSES

Rules for Minimum Standards for Wyoming School Buses

CHAPTER 2

Section 1. Authority. These rules are promulgated by the State Superintendent pursuant to the authority granted by W.S. 31-5-118(a), and W.S. 21-13-320(f).

Section 2. Applicability. These rules pertain to all school buses ordered by or for a Wyoming school district. These rules become effective when signed by the Governor and filed with the Secretary of State's Office.

Section 3. Promulgation, Amendment, or Repeal of Rules. Any amendments to these rules shall become effective as provided by the Wyoming Administrative Procedure Act (W.S. 16-3-101 through 16-3-115).

Section 4. Definitions:

(a) "School Bus" is defined in Wyoming Statute 31-5-102 as "Every motor vehicle that complies with the color and identification requirements set forth in the most recent edition of *Minimum Standards for School Buses* and is used to transport children to or from school but not including buses operated by common carriers in urban transportation of school children." The vehicle is also used for activity and field trips.

(i) Type A school bus is a conversionbus constructed utilizing a cutaway front section vehicle with a left side driver's door. This definition includes two classifications: Type A-1, with a Gross Vehicle Weight Rating (GVWR) of 14,500 pounds or less; and Type A-2, with a GVWR greater than 14,500 and less than or equal to 21,500 pounds.

(ii) "Type 'B' school bus" is a conversion or body constructed and installed upon a van or front section vehicle chassis, or stripped chassis, with a GVWR of more than 14,001 pounds, designed for carrying more than 10 persons. Part of the engine is beneath and/or behind the windshield and beside the driver's seat. The entrance door is behind the front wheels.

(iii) "Type 'C' school bus" is a body installed upon a flat-back cowl chassis with GVWR of more than 14,001 pounds,

designed for carrying more than 10 persons. The entire engine is in front of the windshield and the entrance door is behind the front wheels.

(iv) "Type 'D' school bus" is a body installed upon a chassis, with the engine mounted in the front, midship, or rear with a GVWR of more than 14,001 pounds, designed for carrying more than 10 persons. The engine may be behind the windshield and beside the driver's seat; it may be at the rear of the bus, behind the rear wheels; or midship between the front and rear axles. The entrance door is ahead of the front wheels.

(v) "Multipurpose Passenger Vehicle" (MPV) means every motor vehicle with less than ten passenger positions (including the driver) and that cannot be certified as a bus or school bus by federal standards. (In determining passenger capacity, wheelchair positions are counted as 4 passenger positions.) Although a school entity may use such a vehicle as a station wagon, full-sized sedan, suburban, etc., to transport pupils to and from school or related events, the vehicle shall not be identified as a school bus (including color) and shall not stop or control traffic on the traveled portion of the roadway to load or unload passengers. Drivers of such vehicles shall utilize the same precautions to safeguard the safety of their passengers as they would if they were driving a privately owned passenger vehicle. See Section 9, Multipurpose Passenger Vehicle, for additional requirements.

Section 5. Bus Chassis Standards:

(a) AIR CLEANER.

(i) The engine intake air cleaner system shall be furnished and properly installed by the chassis manufacturer to meet engine manufacturer's specifications.

(ii) The intake air system for diesel engines having an air cleaner restriction indicator shall be properly installed by the chassis manufacturer to meet above specifications.

(b) AXLES. The front and rear axle and suspension systems shall have gross axle weight rating at ground commensurate with the respective front and rear weight loads that will be imposed by the bus.

(c) BRAKES.

(i) All braking systems shall comply with applicable Federal Motor Vehicle Safety Standards.

(ii) The brake lines and booster-assist lines shall be protected from excessive heat and vibration and installed in a manner that prevents chafing.

(iii) All brake systems shall be designed to permit visual inspection of brake lining wear without removal of any chassis components.

(iv) All Type C and D buses shall have air brakes. All air brakes systems shall have heated automatic drain on the wet tank. (except for Type C 30 passenger, which may have hydraulic brakes).

(v) All air brake systems shall be equipped with an air dryer.

(d) BUMPER (Front).

(i) All school buses shall be equipped with a front bumper. The front bumper shall be of pressed steel channel or equivalent material at least 3/16" thick and not less than 8" wide (high) and shall extend beyond forward-most part of the body grille, hood and fenders and shall extend to outer edges of the fenders at the bumper's top line. Type A buses may use the manufacture's standard bumper. On a Type D school bus, if the chassis manufacturer does not provide a bumper, the body manufacturer shall provide it.

(ii) Front bumper, except breakaway bumper ends, shall be of sufficient strength to permit pushing a vehicle of equal gross vehicle weight without permanent distortion to the bumper, chassis, or body on a level surface.

(iii) Tow eyes or hooks shall be furnished and attached so as not to project beyond the front bumper. Type A under 14,001 pounds. GVWR are exempt.

(iv) The bumper shall be designed or reinforced so that it will not deform when the bus is lifted by a chain that is passed under the bumper (or through the

bumper if holes are provided for this purpose) and attached to both tow eyes. For the purpose of meeting this standard, the bus shall be empty and positioned on a level, hard surface and both tow eyes shall share the load equally.

(e) CERTIFICATION. By December 31 of each year, each chassis manufacturer shall certify to the Wyoming Department of Education that their product meets minimum standards on items not covered by certification issued under requirements of the National Traffic and Motor Vehicle Safety Act.

(f) COLOR.

(i) Chassis, including front bumper, shall be black. Body cowl, hood and fenders shall be in National School Bus Yellow. The flat top surface of the hood may be non-reflective National School Bus Yellow.

(ii) Wheels may be silver, gray or black as received from the wheel manufacturer.

(g) DRIVE SHAFT. Drive shaft shall be protected by a metal guard or guards around the circumference of the drive shaft to reduce the possibility of its whipping through the floor or dropping to the ground if broken.

(i) ELECTRICAL SYSTEM. The electrical system shall include the following:

(h) Battery

(A) Storage battery shall have minimum cold cranking capacity rating equal to the cranking current required for 30 seconds at 0 degrees Fahrenheit (-17.8°C) and a minimum reserve capacity rating of 120 minutes at 25 amps. Higher capacities may be required depending upon equipment and local environmental conditions.

(B) Type C bus to have three Group 31 maintenance free batteries. Type D to have two 8D maintenance free batteries.

(i) Alternator

(A) All Type A-1 buses shall have a minimum 130-ampere alternator.

(B) All Type A-II, B, C and D buses shall be equipped with a heavy-duty truck or bus-type alternator, having a minimum output rating of 130 amperes.

(C) All buses equipped with an electrical power lift shall have a minimum 200-ampere alternator.

(D) Direct drive alternator is permissible in lieu of belt drive. Belt drive shall be capable of handling the rated capacity of the alternator with no detrimental effect on other driven components.

(E) Refer to SBMTC Design Objectives, 1990 edition for estimating required alternator capacity.

(ii) Wiring

(A) All wiring shall conform to current applicable recommended practices of the Society of Automotive Engineers (SAE).

(I) All wiring shall use a standard color and number coding and each chassis shall be delivered with a wiring diagram that illustrates the wiring of the chassis.

(B) Chassis manufacturer shall install a readily accessible terminal strip or plug on the body side of the cowl, or in an accessible location in the engine compartment of vehicles designed without a cowl, that shall contain the following terminals for the body connections:

(I) Main 100 amp body circuit

(II) Tail lamps

(III) Right turn signal

(IV) Left turn signal

(V) Stop lamps

(VI) Back up lamps

(VII) Instrument panel lights shall be rheostat controlled

(iii)Circuits

(A) An appropriate identifying diagram (color and number coded) for electrical circuits shall be provided to the body manufacturer for distribution to the end user.

(B) Headlight system shall be wired separately from the body-controlled solenoid.

(i) ENGINES:

(i)All engines shall be equipped with engine block heater.

(ii) All engines shall be supplied with Long Life coolant.

(iii) All engines shall be equipped with cruise control.

(j) EXHAUST SYSTEM.

(i) Exhaust pipe, muffler and tailpipe shall be outside the bus body compartment and attached to the chassis so as not to damage any other chassis component.

(ii) Tailpipe shall be constructed of a corrosion-resistant tubing material at least equal in strength and durability to 16-gauge steel tubing. Type A under 14,001 lbs. GVWR are exempt.

(iii) Chassis manufacturers shall furnish an exhaust system with tailpipe of sufficient length to exit the rear of the bus or at the left side of the bus body no more than 18" forward of the front edge of the rear wheelhouse opening. If designed to exit at the rear of the bus, the tailpipe shall extend at least five inches beyond the end of the chassis frame. If designed to exit to the side of the bus, the tailpipe shall extend at least 48.5 inches (51.5 inches if the body is to be 102" inches wide) outboard from the chassis centerline.

(A) On all buses, the tailpipe shall not exit beneath a fuel fill, an emergency door exit, or a lift door

(iv) Exhaust system on a chassis shall be adequately insulated from the fuel system.

(iv) Muffler shall be constructed of corrosion-resistant material.

(k) FENDERS, FRONT-TYPE C VEHICLES.

(i) Total spread of outer edges of front fenders, measured at fender line, shall exceed total spread of front tires when front wheels are in straight-ahead position.

(ii) Front fenders shall be properly braced and free from any body attachments.

(l) FRAME.

(i) Frame or equivalent shall be of such design and strength characteristics as to correspond at least to standard practice for trucks of the same general load characteristics which are used for highway service.

(ii) Any secondary manufacturer that modifies the original chassis frame shall guarantee the performance of workmanship and materials resulting from such modification.

(iii) Frames shall not be modified for the purpose of extending the wheelbase.

(iv) Holes in top or bottom flanges or side units of the frame, and welding to the frame, shall not be permitted except as provided or accepted by chassis manufacturer.

(v) Frame lengths shall be provided in accordance with SBMTC Design Objectives, 1995 edition, except where body and chassis manufacturer are the same or have established mutual design criteria for the vehicle.

(m) FUEL TANK.

(i) The fuel tank shall be filled and vented to the outside of the body, in a location where accidental fuel spillage will not drip or drain on any part of the exhaust system. Type B and C shall have a minimum 60 gallon fuel tank. Type D buses shall have a minimum 100 gallon fuel tank. (Exception is Type C, 30 passenger bus will have a minimum 35 gallon fuel tank.)

(ii) No portion of the fuel system that is located outside the engine compartment, except the filler tube, shall extend above the top of the chassis frame rail. Fuel lines shall be mounted to obtain maximum possible protection from the chassis frame.

(iii) Fuel filter with replaceable element shall be installed between the fuel tank and engine.

(iv) Fuel tank installation shall be in accordance with SBMTC Design Objectives, 1990 edition, and all Federal Motor Vehicle Safety Standards in effect on the date of manufacture of the bus.

(A) Fuel tank(s) may be mounted between the chassis frame rails or outboard of the frame rails on either the left or right side of the vehicle.

(v) The actual draw capacity of each fuel tank shall be at least 83% of the tank capacity.

(vi) Unless specific agreement has been made between the body and chassis manufacturers, fuel tanks and filler spouts shall not be located in spaces restricted by SBMTC Design Objectives, 1990 edition.

(vii) Installation of alternative fuel systems, including fuel tanks and piping from tank to engine, shall comply with all applicable fire codes and applicable Federal Motor Vehicle Safety Standards in effect on the date of manufacture of the bus.

(A) Installation of LPG tanks shall comply with National Fire Protection Association (NFPA) 58.

(viii) All diesel fuel systems shall be equipped with a fuel heater and/or heated fuel-water separator.

(n) HEATING SYSTEM, PROVISION FOR.

(i) The chassis engine shall have plugged openings for the purpose of supplying hot water to the bus heating system. The openings shall be suitable for attaching 3/4-inch pipe thread/hose connector. The engine shall be capable of supplying water having a temperature of at least 170 degrees Fahrenheit at a flow rate of 50 pounds/per minute at the return end of 30 feet of one inch inside diameter automotive hot water heater hose. (SBMTC Standard No. 001--Standard Code for Testing and Rating Automotive Bus Hot Water Heating and Ventilating Equipment.)

(ii) Type A buses may meet manufacturer's standards.

(o) HORN. Bus shall be equipped with horn or horns of standard make with each horn capable of producing a complex sound in bands of audio frequencies between 250 and 2,000 cycles per second and tested in accordance with SAE J-377.

(p) INSTRUMENTS AND INSTRUMENT PANEL.

(i) Chassis shall be equipped with the following instruments and gauges. (Lights in lieu of gauges are not acceptable, except as noted):

(A) Hourmeter

(B) Speedometer

(C) Tachometer (Type C, D buses)

(D) Odometer that will give accrued mileage (to seven digits), including tenths of miles.

(E) Voltmeter

(I) Ammeter with graduated charge and discharge, with ammeter and its wiring compatible with generating capacities, is permitted in lieu of voltmeter.

(F) Oil pressure gauge

(G) Water temperature gauge

(H) Fuel gauge

(I) Upper beam headlight indicator (light)

(J) Brake indicator gauge (vacuum or air)

(I) Chassis with hydraulic assist brake systems shall be equipped with warning signals readily audible and visible to the driver, that will provide continuous warning in the event of a loss of fluid flow from the primary source or loss of electric power to the back-up system.

(II) Chassis with air brake system shall be equipped with visible gauge and audible low-pressure indicator to warn the driver if air pressure in the brake system falls below 60 PSI.

(III) Chassis with air brake system shall have a labeled visual indicator of park brake application visible to the driver.

(K) Turn signal indicators. (lights)

(L) Glow-plug indicator light where appropriate.

(M) Automatic Transmission temperature gauge (Type C and D buses).

(ii) All instruments shall be easily accessible for maintenance and repair.

(iii) Instruments and gauges shall be mounted on the instrument panel so that each is clearly visible to the driver while seated in a normal driving position in accordance with SBMTC Design Objectives, 1990 edition.

(iv) Instrument panel shall have lamps of sufficient candlepower to illuminate all instruments and gauges and shift selector indicator for automatic transmission.

(q) OIL FILTER. An oil filter with a replaceable element shall be provided and connected by flexible oil lines if not a built-in or an engine-mounted design.

(r) OPENINGS. All openings in the floorboard or firewall between chassis and passenger compartment, such as for gearshift selector and parking brake lever, shall be sealed.

(s) PASSENGER LOAD. Actual gross vehicle weight (GVW) is the sum of the chassis weight, plus the body weight, plus the driver's weight, plus total seated pupil weight.

(i) For purposes of calculation, the driver's weight is 150 pounds.

(ii) For purposes of calculation, the pupil weight is 120 pounds per pupil.

(iii) Actual gross vehicle weight (GVW) shall not exceed the chassis manufacturer's GVWR for the chassis nor shall the actual weight carried on any axle exceed the chassis manufacturer's gross axle weight rating (GAWR).

(t) POWER AND GRADEABILITY. GVWR shall not exceed 185 pounds per published net horsepower of the engine at the manufacturer's recommended maximum number of revolutions per minute.

(u) RETARDER SYSTEM (approved option-see Section 8)

(i) A retarder is a device included within or attached to the engine, transmission or propeller shaft that will, upon demand, provide power to slow the vehicle on a downhill grade or assist the service brakes to stop the vehicle. Included is a hydraulic retarder in the automatic transmission or an electric or hydraulic retarder in the propeller shaft system.

(ii) Retarder system, if used, shall maintain the speed of the fully loaded school bus at 19.0 mph or 30 km/hr on a 7% grade for 3.6 miles or 6 km.

(iii) When a bus is equipped with a retarder the four stop lamps shall be illuminated when the retarder is activated.

(iv) The primary source activation of the retarder shall be a hand control. A foot control may be used in conjunction with the hand control. If a foot control is used, there must be a switch to deactivate the foot control during operation under icy conditions. Either control may activate the retarder separately.

(v) A bus equipped with a retarder shall have a pilot light to indicate when the retarder is in operation.

(vi) A bus equipped with an electro-magnetic retarder shall have controls that are solid state and interfaced with the vehicle's transmission, engine and the ABS brake system without degrading their operation or effectiveness.

(vii) Vehicles equipped with electromagnetic retarders shall have increased electrical capacity commensurate with the needs of the retarding system.

(v) SHOCK ABSORBERS. The bus shall be equipped with double-action shock absorbers compatible with manufacturer's rated axle capacity at each wheel location.

(w) SPRINGS.

(i) The capacity of springs or suspension assemblies shall be commensurate with chassis manufacturer's GAWR. Air suspension may be an approved option (see Section 8).

(ii) Front leaf springs shall have a stationary eye at one end and shall be protected by a wrapped leaf in addition to the main leaf.

(x) STEERING GEAR.

(i) The steering gear shall be approved by the chassis manufacturer and designed to ensure safe and accurate performance when the vehicle is operated with maximum load and at maximum speed.

(ii) If external adjustments are required, steering mechanism shall be accessible to accomplish it.

(iii) No changes shall be made in the steering apparatus that are not approved by the chassis manufacturer.

(iv) There shall be a clearance of at least 2 inches between the steering wheel and cowl, instrument panel, windshield, or any other surface.

(v) Power steering is required and shall be of the integral type with integral valves.

(vi) The steering system shall be designed to provide a means for lubrication of all wear-points, if wear-points are not permanently lubricated.

(vii) Tilt and/or telescoping steering column with padded steering wheel shall be provided.

(y) THROTTLE. The force required to operate the throttle shall not exceed 16 pounds throughout the full range of accelerator pedal travel.

(z) TIRES AND WHEELS.

(i) Tires and disc wheels of the proper size and tires with a load rating commensurate with chassis manufacturer's gross vehicle weight rating shall be provided. The use of multi-piece rims, cast spoke wheels and/or tube-type tires shall not be permitted.

(ii) Dual rear tires shall be provided on all school buses.

(iii) All tires on a vehicle shall be of the same size, and the load range of the tires shall meet or exceed the GVWR as required by FMVSS 120.

(iv) If the vehicle is equipped with a spare tire and wheel assembly, it shall be the same size as those mounted on the vehicle.

(v) If a tire carrier is required, it shall be suitably mounted in an accessible location outside the passenger compartment.

(aa) TRANSMISSION.

(i) Automatic transmissions shall have no fewer than three forward speeds and one reverse speed. The shift selector shall provide a detent between each gear position when the gear selector quadrant and shift selector are not steering column mounted, except for push button transmission selectors.

(ii) An electronic control or similar device may be installed to ensure that automatic transmissions cannot accidentally be moved out of the neutral or park gear position while the driver is not in the driver's seat.

(iii) Automatic transmissions incorporating a parking pawl shall have a transmission shifter interlock controlled by the application of the service brake to prohibit accidental engagement of the transmission. All non-park pawl transmissions shall incorporate a park brake interlock that requires the service brake to be applied to allow release of the parking brake.

(bb) TURNING RADIUS.

(i) A chassis with a wheelbase of 264 inches or less shall have a right and left turning radius of not more than 42 1/2 feet, curb to curb measurement.

(ii) A chassis with a wheelbase of 265 inches or more shall have a right and left turning radius of not more than 44 1/2 feet, curb to curb measurement.

Section 6. Bus Body Standards:

(a) AISLE.

(i) All emergency doors shall be accessible by a 12" minimum aisle. Aisle shall be unobstructed at all times by any type of barrier, seat, wheelchair or tiedown, unless a flip seat is installed and occupied. A flip seat in the unoccupied (up) position shall not obstruct the 12" minimum aisle to any side emergency door.

(b) BACK-UP WARNING ALARM. An automatic audible alarm shall be installed behind the rear axle and shall comply with the published Backup Alarm Standards (SAE 994), providing a minimum of 112 dBA.

(c) BATTERY.

(i) Battery is to be furnished by chassis manufacturer.

(ii) The manufacturer shall securely attach the battery on a slide-out or swing-out tray in a closed, vented compartment in the body skirt, so that the battery is accessible for convenient servicing from the outside. Battery compartment door or cover shall be hinged at front or top, and secured by an adequate and conveniently operated latch or other type fastener in the open and closed

position. On Type A buses, one or both batteries may be mounted in the engine compartment in an accessible location.

(d) BOOK RACKS (approved options - see Section 8).

(i) Bookracks, if installed, shall be provided above side windows within range from front seat to rear seat and be free of projections.

(ii) Racks shall have a padded perimeter at emergency exit doors.

(iii) Racks may be tubular or solid bottom.

(e) BUMPER (REAR).

(i) Bumper shall be pressed steel channel or equivalent material, at least 3/16" thick, and shall be a minimum of 8" wide (high) on Type A-II and a minimum of 9 1/2 wide (high) on Types A-I, B, C and D buses and of sufficient strength to permit being pushed on a level surface by another vehicle without permanent distortion.

(ii) Bumper shall be wrapped around back corners of the bus. It shall extend forward at least 12", measured from the rear-most point of the body at the floor line and shall be flush mounted to body side or protected with an end panel.

(iii) Bumper shall be attached to the chassis frame in such a manner that it may be easily removed. It shall be so braced as to withstand impact from a rear or side impact. It shall be so attached as to discourage hitching of rides.

(iv) Bumper shall extend at least 1" beyond rear-most part of body surface measured at the floor line.

(v) Trailer hitches are not allowed.

(f) CAMERAS.

(i) All buses may be equipped with the wiring and system for video cameras to monitor student and driver behavior.

(ii) A district may order a camera system in each Type A, B, C and D bus.

(g) CEILING.

(i) All Type C and D buses shall have a full-length acoustic ceiling.

(ii) See Inside Height, Insulation and Interior.

(h) CERTIFICATION. By December 31 of each year, each body manufacturer shall certify to the Wyoming Department of Education that their product meets minimum standards on items not covered by certification issued under requirements of the National Traffic and Motor Vehicle Safety Act.

(i) CHAINS (TIRE). See Wheelhousing

(j) COLOR.

(i) The school bus body shall be painted National School Bus Yellow.

(ii) Rub rails shall be black.

(iii) Optionally, at district expense, the roof of the bus may be painted white extending down to within 6" above the drip rails on the sides of the body, except that front and rear roof caps shall remain National School Bus Yellow.

(k) CONSTRUCTION.

(i) Construction shall be of prime commercial quality steel or other metal or material with strength at least equivalent to all steel, as certified by the bus body manufacturer.

(ii) Construction shall be reasonably dust-proof and watertight.

(iii) Body joints present in that portion of the Type A-II school bus body furnished exclusively by the body manufacturer shall conform to the performance requirements of FMVSS 221. This does not include the body joints created when body components are attached to components furnished by the chassis manufacturer.

(l) CROSSING CONTROL ARM.

(i) All Type C buses shall be equipped with a crossing control arm. All other type buses may be equipped with crossing control arms. (Approved option - see Section 8)

(ii) Crossing control arm shall be mounted on the right side of the front bumper and shall not open more than 90 degrees.

(iii) All components of the crossing control arm and all connections shall be weatherproofed.

(iv) The crossing control arm shall incorporate system connectors (electrical, vacuum, or air) at the gate and shall be easily removable to allow for towing of the bus.

(v) The crossing control arm shall meet or exceed SAE Standard J1133.

(vi) The crossing control arm shall be constructed of non-corrosive or nonferrous material or treated in accordance with the body sheet metal standard (see METAL TREATMENT).

(vii) There shall be no sharp edges or projections that could cause hazard or injury to students.

(viii) The crossing control arm shall extend approximately 72" from the front bumper when in the extended position.

(vix) The crossing control arms shall extend simultaneously with the stop arm(s) by means of the stop arm controls.

(x) A momentary override switch shall be provided to prevent the arm from opening if inadequate space is available when loading or unloading on school grounds or similar loading zones.

(m) DEFROSTERS.

(i) Defrosting and defogging equipment shall direct a sufficient flow of heated air onto the windshield,

the window to the left of the driver, and the glass in the viewing area directly to the right of the driver to eliminate frost, fog and snow.

(ii) The defrosting system shall conform to SAE standards J381 and J382.

(iii) The defroster and defogging system shall be capable of furnishing heated outside ambient air, except the part of the system furnishing additional air to the windshield, entrance door and stepwell may be of the recirculating air type.

(iv) Auxiliary fans are not considered defrosting or defogging systems.

(v) Portable heaters shall not be used.

(n) DOORS. Service door

(i) All service doors shall be equipped with power openers.

(ii) Service door shall be in the driver's control, and designed to afford easy release and provide a positive latching device to prevent accidental opening. No part shall come together that will shear or crush fingers.

(iii) Service door shall be located on the right side of the bus, opposite and within direct view of driver.

(iv) Service door shall have a minimum horizontal opening of 24" and a minimum vertical opening of 68".

(iv) Service door shall be a split-type. (Split type door includes any sectioned door that divides and opens outward.)

(vi) Lower as well as upper door panels shall be of thermo safety glass. Bottom of each lower glass panel shall not be more than 10" from the top surface of bottom step. The top of each upper glass panel, when viewed from the interior, shall not be more than 3" below the interior door control cover or header pad.

(vii) Vertical closing edges on entrance doors shall be equipped with flexible material to protect children's fingers.

(viii) There shall be no door to left of driver on Type B, C or D vehicles. Type A vehicles may be equipped with chassis manufacturer's standard door to the left of the driver.

(vix) All doors shall be equipped with padding at the top edge of each door opening. Padding shall be at least 3" wide and 1" thick and extend the full width of the door opening.

(o) DRIVER COMPARTMENT.

(i) Driver's seat supplied by the body company shall be a high back suspension seat with a minimum seat back adjustment of 15 degrees, not requiring the use of tools, and with a head restraint to accommodate a 95th percentile adult male, as defined in FMVSS 208. The driver's seat shall be secured with nuts, bolts, and washers or flanged-headed nuts. Type A may use manufacturer's original equipment.

(ii) Driver seat positioning and range of adjustments shall be designed to accommodate comfortable actuation of the foot control pedals by 95% of the male/female adult population.

(iii) There shall be no cup holders in the driver's compartment.

(iv) The front of the driver's seat back is to be no closer to the steering wheel than 11" (inches)under the following conditions:

(A) The driver's seat slide is to be in its forward most position.

(B) The driver's seat bottom is to be centered in its vertical travel.

(C) The driver's seat back is to be in the vertical position.

(D) The steering wheel is to be in the center of its travel for both tilt/telescope positions.

(E) The seat must be able to move through it rearward most travel on the seat slide without contacting any portion of the passenger barrier immediately behind it, including during it's entire vertical travel when in the rearward most travel position. There shall also be no contact between the driver's seat and the first passenger barrier with the seat back in the first 10 degrees of seat recline.

(p) EMERGENCY EXITS.

(i) Emergency door(s) and other emergency exits shall comply with the requirements of FMVSS 217 and any of the requirements of these standards that exceed FMVSS 217.

(ii) Emergency door requirements

(A) Upper portion of the rear emergency door shall be equipped with approved safety glazing, exposed area of which shall be at least 400 square inches. The lower portion of the rear emergency doors on Types A-I, B, C, and D vehicles shall be equipped with a minimum of 350 square inches of approved safety glazing. All glass in rear emergency doors shall be thermo glass.

(B) There shall be no steps leading to an emergency door.

(C) The words "EMERGENCY DOOR," in letters at least 2" high, shall be placed at the top of or directly above the emergency door, or on the door in the metal panel above the top glass, both inside and outside the bus.

(D) The emergency door(s) shall be equipped with padding at the inside top edge of each door opening. Padding shall be at least 3" wide and 1" thick, and extend the full width of the door opening.

(E) The emergency door(s) shall be equipped with an emergency door telescoping cam-operated retainer prop, mounted at top interior of door and door frame.

(F) The side emergency door(s), if installed, must meet the requirements as set forth in FMVSS 217, regardless of its use with any other combination of emergency exits.

(G) There shall be no obstruction higher than 1/4 inch across the bottom of any emergency door opening.

(iii) Emergency exit requirements

(A) Types A, B, C, and D vehicles shall be equipped with a total number of emergency exits as follows for the indicated capacities of vehicles. Exits required by FMVSS 217 may be included to comprise the total number of exits specified.

(I) 1 to 45 Passenger = 1 emergency exit per side and 1 roof hatch.

(II) 46 to 78 Passenger = 2 emergency exits per side and 2 roof hatches.

(III) 79 to 90 passenger = 3 emergency exits per side and 2 roof hatches.

(B) Each emergency exit above shall comply with FMVSS 217. These emergency exits are in addition to the rear emergency door or exit.

(C) In addition to the audible warning required on emergency doors by FMVSS 217, additional emergency exits shall be equipped with an audible warning device.

(q) EMERGENCY EQUIPMENT.

(i) Fire extinguisher

(A) The bus shall be equipped with at least one UL-approved pressurized, dry chemical fire extinguisher complete with hose. Extinguisher shall be mounted in a bracket, located in the driver's compartment and readily accessible to the driver and passengers. A pressure gauge shall be mounted on the extinguisher and be easily read without moving the extinguisher from its mounted position.

(B) The fire extinguisher shall have a total rating of 2A10BC or greater. The operating mechanism shall be sealed with a type of seal that will not interfere with the use of the fire extinguisher.

(C) Vehicles with a capacity of 56 passengers and above shall be equipped with a second fire extinguisher. The second extinguisher shall be mounted in the rear of the bus in a bracket and be readily accessible to the driver and passengers. A pressure gauge shall be mounted on the extinguisher and be easily read without moving the extinguisher from its mounted position. The extinguisher shall meet the requirements of (b) above. It shall not be mounted on the bulkhead.

(ii) First-aid kit

(A) The bus shall have a removable moisture-proof and dust-proof first-aid kit in an accessible place in the driver's compartment. It shall be properly mounted and identified as a first-aid kit. The location for the first-aid kit shall be marked.

(B) Vehicles with a capacity of 56 passengers and above shall be equipped with a second first-aid kit. The second first-aid kit shall be mounted in the rear of the bus and identified as a first-aid kit. It shall not be mounted on the bulkhead.

(C) Contents shall include:

2 - 1" x 2 1/2 yards adhesive tape rolls
24 - sterile gauze pads 3"x 3"
100 - 3/4" x 3" adhesive bandages
8 - 2" bandage compress
10- 3" bandage compress
2 - 2" X 6' sterile gauze roller bandages
2 - non-sterile triangular bandages approximately 40" x 36" x 54" with 2 safety pins
3 - sterile gauze pads 36" x 36"
3 - sterile eye pads
1 - rounded-end scissors
1 - pair latex gloves
1 - mouth-to-mouth airway

(iii) Body fluid clean-up kit. Each bus shall have a removable and moisture-proof body fluid clean-up kit

accessible to the driver. It shall be properly mounted and identified as a body fluid clean-up kit.

(iv) Warning devices. Each school bus shall contain at least three (3) reflectorized triangle road-warning devices mounted in an accessible place. These devices must meet requirements in FMVSS 125.

(v) Any of the emergency equipment may be mounted in an enclosed compartment, provided the compartment is labeled in not less than one inch letters, stating the piece(s) of equipment contained therein.

(r) FLOORS.

(i) Floor in under-seat area, including tops of wheelhousing, driver's compartment and toeboard, shall be covered with rubber floor covering or equivalent, having a minimum overall thickness of .125". The driver's area on Type A buses may be manufacturer's standard flooring and floor covering.

(ii) Floor covering in aisles shall be of aisle-type rubber or equivalent, wear-resistant and ribbed. Minimum overall thickness shall be .187" measured from tops of ribs.

(iii) Floor covering shall be permanently bonded to floor and must not crack when subjected to sudden changes in temperature. Bonding or adhesive material shall be waterproof and shall be a type recommended by the manufacturer of floorcovering material. All seams must be sealed with waterproof sealer. An aluminum or vinyl strip may cover seams between underseat and aisle.

(iv) Floors shall not be black.

(v) On all buses, a screw-down plate that is secured and insulated shall be provided to access the fuel tank-sending unit. Type A buses are exempt.

(s) FUEL DOOR. All vehicles shall be equipped with a latching or spring closed fuel door.

(t) HEATERS.

(i) All school buses shall be equipped with two or more hot water heaters. One of these heaters shall be located in the rear half of the bus on or behind the rear wheel axle line. The front heaters and integrated defroster system shall be of a capacity to provide heat for the front part of the bus, including driver's compartment, and to provide heat for the windshield area, service door glass, driver's left glass area and step well.

(ii) The largest front heater shall be fresh-air or combination fresh-air and recirculation type.

(iii) Additional heaters may be recirculating air type.

(iv) The heating system shall be capable of maintaining bus interior temperatures as specified in applicable SAE test procedure J2233.

(v) Auxiliary fuel-fired heating systems are permitted, (approved option - see Section 8) provided they comply with the following:

(A) The auxiliary heating system fuel shall utilize the same type fuel as specified for the vehicle engine.

(B) Heater(s) may be direct hot air or connected to the engine's coolant system.

(C) Auxiliary heating system, when connected to the engine's coolant system, may be used to preheat the engine coolant or preheat and add supplementary heat to the bus's heating system.

(D) Auxiliary heating systems must be installed pursuant to the manufacturer's recommendations and shall not direct exhaust in such a manner that will endanger bus passengers.

(E) Auxiliary heating systems that operate on diesel fuel shall be capable of operating on #1, # 2 or blended diesel fuel without the need for system adjustment.

(F) The auxiliary heating system shall be low voltage.

(G) Auxiliary heating systems shall comply with all applicable Federal Motor Vehicle Safety Standards, including FMVSS 301, as well as SAE test procedures.

(vi) All forced air heaters installed by body manufacturers shall bear a name plate that indicates the heater rating in accordance with SBMTC Standard No. 001. The plate shall be affixed by the heater manufacturer and shall constitute certification that the heater performance is as shown on the plate.

(vii) Heater hoses shall be adequately supported to guard against excessive wear due to vibration. The hoses shall not dangle or rub against the chassis or any sharp edges and shall not interfere with or restrict the operation of any engine function. Heater hoses shall conform to SAE Standard J20c. Heater lines on the interior of bus shall be shielded to prevent scalding of the driver or passengers.

(viii) Each hot water system installed by a body manufacturer shall include one shut-off valve in the pressure line and one shut-off valve in the return line with both valves at the engine in an accessible location, except that on all Types A buses, the valves may be installed in another accessible location.

(vix) There shall be a water flow-regulating valve installed in the pressure line for convenient operation by the driver while seated.

(x) All combustion heaters shall be in compliance with current Federal Motor Carrier Safety Regulations.

(xi) Accessible bleeder valves shall be installed in an appropriate place in the return lines of body company-installed heaters to remove air from the heater lines.

(xii) Access panels shall be provided to make heater motors, cores, and fans readily accessible for service. Outside access panel may be provided for the driver's heater.

(xiii) All heating systems shall be equipped with an auxiliary heater booster pump, except Type A.

(u) HINGES. Exposed metal emergency door, lift door, and service door hinges which do not have stainless steel, brass, or non-metallic hinge pins or other design that prevents corrosion and allows complete lubrication without disassembly, shall be designed to allow lubrication to be channeled to the center 75% of each hinge loop.

(v) IDENTIFICATION.

(i) Body shall bear words "SCHOOL BUS" in black letters at least 8 inches high on both front and rear of body or on signs attached thereto. Lettering shall be placed as high as possible without impairment of its visibility. Letters shall conform to "Series B" of Standard Alphabets for highway signs. "SCHOOL BUS" lettering shall have a reflective background, or as a district paid option, may be illuminated by backlighting.

(ii) Required lettering and numbering shall include:

(A) District or company name shall be displayed at the beltline and be worded as "_____ County School District Number, City, Wyoming" (if district owned), "(Company Name), (City), Wyoming" if company owned. If district owned, "City" may be deleted if a district has attendance centers in multiple cities.

(B) Bus identification number shall be displayed on body beside entrance door, rear in area of right side tail light, left side in vicinity of driver's window, front in area designated by the buyer.

(C) All the above lettering and numbering shall be black block letters, a minimum of 5 inches high with a 1 inch wide stroke.

(iii) Other lettering, numbering, or symbols that may be displayed on the exterior of the bus shall be limited to:

(A) Bus identification number on the top of the bus, in addition to required numbering on sides, rear, and front.

(B) The location of the battery(ies) identified by the word "BATTERY" or "BATTERIES" on the battery compartment door in 2" high lettering.

(C) Symbols or letters near the service door displaying information for identification by the students of the bus or route served. Such symbols or lettering, if used, shall not exceed 144 square inches in size. These interchangeable bus identification placards shall be placed adjacent to the service door.

(D) School bus manufacturer or school bus dealer identification or logos.

(E) Symbols identifying the bus as equipped for or transporting students with special needs (see Specially Equipped School Bus section).

(F) Team name and/or logo above windows on the roof of activity buses(paid for by the school district).

(iv) Only signs and lettering approved by state law or regulation shall appear on outside of bus.

(w) INSIDE HEIGHT. Inside body height shall be 72" or more, measured metal to metal, at any point on longitudinal centerline from front vertical bow to rear vertical bow.

(x) INSULATION.

(i) Bus body shall be fully insulated in the roof, all body panels, front and rear headers and the cavities in the roof and side bows. Thermal insulation shall be fire-resistant, UL approved, and approximately 1 1/2" thick with minimum R-value of 5.5. Insulation shall be installed to prevent sagging.

(ii) Floor insulation shall be either 5 ply nominal 5/8" thick plywood, or a material of equal or greater strength and insulation R value, and it shall equal or exceed properties of the exterior-type softwood plywood, C-D Grade as specified in standard issued by U.S. Department of Commerce. When plywood is used, all exposed edges shall be sealed. Type A-I buses may be equipped with nominal 1/2" thick plywood meeting above requirements.

(y) INTERIOR.

(i) Interior of bus shall be free of all unnecessary projections to minimize the potential for injury. This standard requires inner lining on ceilings and walls. If ceiling is constructed to contain lapped joints, forward panel shall be lapped by rear panel and exposed edges shall be beaded, hemmed, flanged, or otherwise treated to minimize sharp edges.

(ii) The driver's area forward of the foremost padded barriers will permit the mounting of required safety equipment and vehicle operation equipment.

(iii) Every school bus shall be constructed so that the noise level taken at the ear of the occupant nearest to the primary vehicle noise source shall not exceed 85 dBA.

(z) LAMPS AND SIGNALS.

(i) Interior lamps shall be provided which adequately illuminate aisle and stepwell. Stepwell light shall be illuminated by a service door operated switch, to illuminate only when headlights and clearance lights are on and service door is open.

(ii) A rheostat switch shall control body instrument panel lights.

(iii) School bus alternately flashing signal lamps:

(A) Bus shall be equipped with two red lamps at the rear of vehicle and two red lamps at the front of the vehicle.

(B) In addition to the four red lamps described above, four amber lamps shall be installed so that one amber lamp is located near each red signal lamp, at same level, but closer to vertical centerline of bus. The system of red and amber signal lamps shall be wired so that amber lamps are energized manually, and red lamps are automatically energized (with amber lamps being automatically de-energized) when stop signal arm is extended or when bus service door is opened. An amber pilot light and a red pilot light shall be installed adjacent to the driver controls for the flashing

signal lamp to indicate to the driver which lamp system is activated.

(C) Area around lens of each alternately flashing signal lamp and extending outward approximately 3" shall be black in color. In installations where there is no flat vertical portion of body immediately surrounding entire lens of lamp, a circular or square band of black approximately 3" wide, immediately below and to both sides of the lens, shall be black in color on body or roof area against which signal lamp is seen (from distance of 500 feet along axis of vehicle). Visors or hoods, black in color, with a minimum depth of 4" may be provided.

(D) Red lamps shall flash at any time the stop signal arm is extended.

(E) All flashers for alternately flashing red and amber signal lamps shall be enclosed in the body in a readily accessible location.

(iv) Turn signal and stop/tail lamps:

(A) Bus body shall be equipped with amber rear turn signal lamps that are at least 7" in diameter or if a shape other than round, a minimum 38 square inches of illuminated area and meet SAE specifications. These signal lamps must be connected to the chassis hazard warning switch to cause simultaneous flashing of turn signal lamps when needed as vehicular traffic hazard warning. Turn signal lamps are to be placed as wide apart as practical and their centerline shall be approximately 8" below the rear window.

(B) Buses shall be equipped with amber side-mounted turn signal lights. The turn signal lamp on the left side shall be mounted rearward of the stop signal arm and the turn signal lamp on the right side shall be mounted rearward of the service door.

(C) Buses shall be equipped with four combination red stop/tail lamps:

(I) Two combination lamps with a minimum diameter of 7" or if a shape other than round, a minimum 38 square inches of illuminated area shall be mounted on the rear of the bus just inside the turn signal lamps.

(II) Two combination lamps with a minimum diameter of 4", or if a shape other than round, a minimum 12 square inches of illuminated area shall be placed on the rear of the body between the beltline and the floor line. Rear license plate lamp may be combined with one lower tail lamp. Stop lamps shall be activated by the service brakes and shall emit a steady light when illuminated.

(v) On buses equipped with a monitor for the front and rear lamps of the school bus, the monitor shall be mounted in full view of the driver. If the full circuit current passes through the monitor, each circuit shall be protected by a fuse or circuit breaker against any short circuit or intermittent shorts.

(vi) Strobe Light (approved option - see Section 8) shall have a single clear lens emitting light 360 degrees around its vertical axis. It shall be located on the longitudinal centerline of the bus roof, approximately 1/3 of the distance forward from the rear of the bus, behind the rear most roof hatch. It shall be controlled by a manual switch located in the instrument panel to the left of the driver with a pilot light to indicate that the light is turned on.

(vii) Bus body shall be equipped with two white rear backup lamp signals that are at least 4" in diameter or, if a shape other than round, a minimum of 13 square inches of illuminated area, meeting SAE specifications. If backup lamps are placed on the same line as the brake lamps and turn signal lamps, they shall be to the inside.

(aa) METAL TREATMENT.

(i) All metal used in construction of bus body shall be zinc-coated or aluminum-coated or treated by equivalent process before bus is constructed. Included are such items as structural members, inside and outside panels, door panels and floor sills. Excluded are such items as door handles, grab handles, interior decorative parts and other interior plated parts.

(ii) All metal parts that will be painted shall be, in addition to above requirements, chemically cleaned, etched, zinc-phosphate coat and zinc-chromate or epoxy primed or conditioned by equivalent process.

(iii) In providing for these requirements, particular attention shall be given lapped surfaces, welded connections of structural members, cut edges punched or drilled hole areas in sheet metal, closed or box sections, unvented or undrained areas and surfaces subjected to abrasion during vehicle operation.

(iv) As evidence that above requirements have been met, samples of materials and sections used in construction of the bus body subjected to cyclic corrosion testing as outlined in SAE J1563.

(bb) MIRRORS.

(i) Interior mirror shall be either clear view laminated glass or clear view glass bonded to a backing that retains the glass in the event of breakage. Mirror shall have rounded corners and protected edges. All Type A buses shall have a minimum of a 6" x 16" mirror and Type B, C, and D buses shall have a minimum of a 6" x 30" mirror and a maximum of 8" x 30" mirror.

(ii) Each school bus shall be equipped with exterior mirrors meeting the requirements of FMVSS 111. Mirrors shall be easily adjustable, but shall be rigidly braced so as to reduce vibration. All outside mirrors shall be heated, powered/remote controlled (excluding crossover mirrors).

(cc) MOUNTING.

(i) Chassis frame shall support rear body cross member. Bus body shall be attached to chassis frame at each main floor sill, except where chassis components interfere, in such manner as to prevent shifting or separation of the body from the chassis under severe operating conditions.

(ii) Insulation material shall be placed at all contact points between body and chassis frame on Types A-I, B, C, and D buses, and shall be so attached to the chassis frame or body that it will not move under severe operating conditions.

(dd) OVERALL LENGTH. Overall length of bus shall not exceed 43 feet, excluding accessories.

(ee) OVERALL WIDTH. Overall width of bus shall not exceed 102", excluding accessories.

(ff) PUBLIC ADDRESS SYSTEM. (Approved option - see Section 8) Buses may be equipped with a public address system having interior and/or exterior speakers.

(gg) RADIO All school buses shall be equipped with an AM/FM radio. Any speaker forward of the front passenger seat shall have an independent volume control.

(hh) REFLECTIVE MATERIAL.

(i) Front and/or rear bumper may be marked diagonally 45 degrees down to centerline of pavement with 2" +/- 1/4" wide strips of noncontrasting reflective material.

(ii) Rear of bus body shall be marked with strips of reflective National School Bus Yellow material to outline the perimeter of the back of the bus using material which conforms with the requirements of FMVSS 571.131 Table 1. The perimeter marking of rear emergency exits per FMVSS 217 and/or the use of reflective "SCHOOL BUS" signs partially accomplish the objective of this requirement. To complete the perimeter marking of the back of the bus, strips of at least 1 3/4" reflective National School Bus Yellow material shall be applied horizontally above the rear windows and above the rear bumper extending from the rear emergency exit perimeter marking outward to the left and right rear corners of the bus; and vertical strips shall be applied at the corners connecting these horizontal strips.

(iii) "SCHOOL BUS" signs, if not of lighted design, shall be marked with reflective National School Bus Yellow material comprising background for lettering of the front and/or rear "SCHOOL BUS" signs.

(iv) Sides of bus body shall be marked with reflective National School Bus Yellow material at least 1 3/4" in width, extending the length of the bus body and located (vertically) between the floor line and the beltline.

(v) All emergency exits shall be outlined in reflective National School Bus Yellow material.

(ii) RUB RAILS.

(i) There shall be one rub rail located on each side of bus approximately at seat level which shall extend from rear side of entrance door completely around bus body (except emergency door or any maintenance access door) to point of curvature near outside cowl on left side.

(ii) There shall be one rub rail located approximately at floor line which shall cover the- same longitudinal area as upper rub rail, except at wheelhousing, and shall extend only to radii of right and left rear corners.

(iii) Both rub rails shall be attached at each body post and all other upright structural members.

(iv) Both rub rails shall be 4" or more in width in their finished form, shall be of 16- gauge steel or suitable material of equivalent strength, and shall be constructed in corrugated or ribbed fashion.

(v) Both rub rails shall be applied outside body or outside body posts. Pressed-in or snap-on rub rails do not satisfy this requirement. For buses using rear luggage or rear engine compartment, rub rails need not extend around rear corners.

(vi) There shall be a rub rail or equivalent bracing located horizontally at the bottom edge of the body side skirts.

(jj) SEAT BELT FOR DRIVER. A Type 2 lap belt/shoulder harness seat belt shall be provided for the driver. The assembly shall be equipped with an emergency locking retractor (ELR) for the continuous belt system. On all buses except Type A equipped with standard chassis manufacturer's driver's seat, the lap portion of the belt shall be guided or anchored to prevent the driver from sliding sideways under it. The lap belt/shoulder harness shall be designed to allow for easy adjustment in order to fit properly and effectively protect drivers varying from 5th percentile female to 95th percentile male.

(kk) SEAT AND CRASH BARRIERS.

(i) In determining seating capacity of bus, allowable average rump width shall be:

(A) 13" where 3-3 seating plan is used.

(B) 15" where 3-2 seating plan is used.

(ii) All restraining barriers and passenger seats shall be constructed with materials that enable them to meet the criteria contained in FMVSS 302.

(iii) Each seat leg shall be secured to the floor by a minimum of two (2) bolts, washers, and nuts. Flange-head nuts may be used in lieu of nuts and washers, or seats may be track mounted in conformance with FMVSS 222. If track seating is installed, the manufacturer shall supply minimum and maximum seat spacing dimensions applicable to the bus, which comply with FMVSS 222. This information shall be on a label permanently affixed to the bus.

(iv) All seat frames attached to the seat rail shall be fastened with two (2) bolts, washers and nuts or flange-headed nuts.

(v) Type A-II school bus bodies shall be equipped with restraining barriers conforming to FMVSS 222.

(vi) Bus seats may be equipped with integrated child restraint seats.

(vii) All seats must meet FMVSS 222.

(ll) STEPS.

(i) First step at service door shall be not less than 10" and not more than 14" from the ground when measured from top surface of the step to the ground, based on standard chassis specifications, except that on Type D vehicles, the first step at the service door shall be 12" to 16" from the ground.

(ii) Step risers shall not exceed a height of 10". When plywood is used on a steel floor or step, the riser height may be increased by the thickness of the plywood.

(iii) Steps shall be enclosed to prevent accumulation of ice and snow.

(iv) Steps shall not protrude beyond the side bodyline.

(v) A suitable device (or devices) shall be designed and installed to prevent injury or fatality to passengers from being dragged. At least one such device shall assist passengers during entry or egress, and be of such design to eliminate entanglement.

(vi) Steps may be equipped with heaters.

(mm) STEP TREADS.

(i) All steps, including floor line platform area, shall be covered with 3/16" rubber floor covering or other materials equal in wear and abrasion resistance to top grade rubber.

(ii) A durable backing material resistant to corrosion shall be permanently bonded to rubber.

(iii) 3/16" ribbed step tread shall have a 1 1/2" white nosing as an integral piece without any joint.

(iv) Rubber portion of step treads shall have the following characteristics:

(A) Special compounding for good abrasion resistance and high coefficient of friction.

(B) Flexibility so that it can be bent around a 1/2" mandrel both at 130 degrees Fahrenheit and 20 degrees Fahrenheit without breaking, cracking, or crazing.

(C) Show a durometer hardness of 85 to 95.

(nn) STIRRUP STEPS. There shall be at least one folding stirrup step or recessed foothold and suitably located handles on each side of the front of the body for easy accessibility for cleaning the windshield and lamps. Steps are permitted in or on the front bumper, in lieu of the stirrup steps if the windshield and lamps are easily accessible for cleaning from that position. Type A under 14,001 lbs. GVWR are exempt.

(oo) STOP SIGNAL ARM.

(i) The stop signal arm shall comply with the requirements of FMVSS 131.

(ii) The stop arm shall be reflectorized.

(iii) The stop arm shall be lighted.

(iv) The stop arm shall be equipped with a wind guard.

(v) There shall be only one stop arm per bus, mounted on the left side near the driver's window.

(pp) STORAGE COMPARTMENT. A storage container for tools, tire chains, and/or tow chains shall be provided and may be located either inside or outside the passenger compartment. If inside, it shall have a cover (seat cushion may not serve this purpose) capable of being securely latched. The container shall be fastened to the floor, convenient to either the service or emergency door.

(qq) SUN SHIELD.

(i) Interior adjustable sun shield not less than 6" X 30" for Type B, C, and D vehicles, with a finished edge, shall be installed in a position convenient for use by driver.

(ii) On Type A buses the sun shield shall be manufacturer's standard.

(rr) TAILPIPE.

(i) Tailpipe shall extend out to but not more than 2" beyond perimeter of the body or the bumper.

(ss) TOW EYES OR HOOKS. Tow eyes or hooks shall be furnished on the rear and attached so they do not project beyond the rear bumper.

(tt) UNDERCOATING.

(i) The entire underside of the bus body, including floor sections, cross member and below floor-line side panels, shall be coated with rust-proofing material for which the material manufacturer has issued to the bus body manufacturer a notarized certification to the bus body

manufacturer that materials meet or exceed all performance requirements of SAE J1959.

A. The undercoating material shall be applied with suitable airless or conventional spray equipment to the undercoating material manufacturer recommended film thickness and shall show no evidence of voids in the cured film.

B. The undercoating material shall not cover any exhaust components of the chassis.

(uu) VENTILATION.

(i) Auxiliary fans shall meet the following requirements:

(A) Fans for left and right sides shall be placed in a location where they can be adjusted for maximum effectiveness and do not obstruct vision to any mirror. Type A buses may be equipped with one fan.

(B) Fans shall be a nominal 6" diameter.

(C) Fan blades shall be covered with a protective cage. A separate switch shall control each fan.

(ii) Body shall be equipped with a suitably controlled ventilating system of sufficient capacity to maintain proper quantity of air under operating conditions, without having to open windows except in extremely warm weather.

(A) Static-type non-closeable exhaust ventilation shall be installed in low-pressure area of roof.

(iii) Roof hatches designed to provide ventilation, regardless of the exterior weather conditions, may be provided.

(vv) WHEELHOUSING.

(i) The wheelhousing opening shall allow for easy tire removal and service.

(ii) Wheelhousing opening shall be equipped with molded fender extensions to provide protection to the bus body from debris thrown up from the road.

(iii) The wheelhousing shall be attached to floor sheets in such a manner as to prevent any dust, water or fumes from entering the body. Wheelhousing shall be constructed of at least 16-gauge steel.

(iv) The inside height of the wheelhousing above the floor line shall not exceed 12".

(v) The wheelhousing shall provide clearance for installation and use of tire chains on single and dual (if so equipped) power-driving wheels.

(vi) No part of a raised wheelhousing shall extend into the emergency door opening.

(vii) Front and rear wheelhousing shall be equipped with rubber mudflaps.

(ww) WINDOWS.

(i) Each full side window, other than emergency exits designated to comply with FMVSS 217, shall provide an unobstructed emergency opening of at least 9" but not more than 13" high and at least 22" wide, obtained by lowering window. One side window on each side of the bus may be less than 22" wide.

(ii) Driver's window, the first window on the left, and the first window after the service door shall be thermo glass. Type A bus driver's window may be manufacturer's standard.

(iii) Optional tinted and/or thermo glass glazing may be installed in all doors, windows, and windshields (other than required thermo glass) consistent with federal, state, and local regulations.

(xx) WINDSHIELD WASHERS. A windshield washer system shall be provided in a location easily serviceable by the driver.

(yy) WINDSHIELD WIPERS.

(i) A windshield wiping system, two speed or variable speed, with an intermittent feature, shall be provided.

(ii) The wipers shall be operated by one or more air or electric motors of sufficient power to operate wipers. If one motor is used, the wipers shall work in tandem to give full sweep of windshield.

(zz) WIRING.

(i) All wiring shall conform to current SAE standards.

(ii) Circuits:

(A) Wiring shall be arranged in circuits, as required, with each circuit protected by a fuse or circuit breaker. A system of color and number coding shall be used and an appropriate identifying diagram shall be provided to the end user along with the wiring diagram provided by the chassis manufacturer. The wiring diagrams shall be specific to the bus model supplied and include any changes to wiring made by the body manufacturer. Chassis wiring diagrams shall also be supplied to the end user. A system of color and number coding shall be used on buses. The following body interconnecting circuits shall be color-coded as noted:

FUNCTION	COLOR
Left Rear Directional Light	Yellow
Right Rear Directional Light	Dark Green
Stoplights	Red
Back-up Lights	Blue
Taillights	Brown
Ground	White
Ignition Feed, Primary Feed	Black

The color of cables shall correspond to SAE I 1128.

(B) Wiring shall be arranged in at least six regular circuits as follows:

(I) Head, tail, stop (brake) and instrument panel lamps

(II) Clearance and stepwell lamps (stepwell lamp shall be actuated when service door is opened)

(III) Dome lamp

(IV) Ignition and emergency door signal

(V) Turn signal lamps

(VI) Alternately flashing signal lamps

(C) Any of the above combination circuits may be subdivided into additional independent circuits.

(D) At least one additional circuit shall be installed for heaters and defrosters.

(E) Whenever possible, all other electrical functions (such as automatic tire chains and electric-type windshield wipers) shall be provided with independent and properly protected circuits.

(F) Each body circuit shall be coded by number or letter on a diagram of circuits and shall be attached to the body in a readily accessible location.

(iii) The entire electrical system of the body shall be designed for the same voltage as the chassis on which the body is mounted.

(iv) All wiring shall have an amperage capacity exceeding the design load by at least 25%. All wiring splices are to be done at an accessible location and noted as splices on wiring diagram.

(v) A body wiring diagram, of a size which can be easily read, shall be furnished with each bus body or affixed in an area convenient to the electrical accessory control panel.

(vi) The body power wire shall be attached to a special terminal on the chassis.

(vii) All wires passing through metal openings shall be protected by a grommet.

(viii) Wires not enclosed within body shall be fastened securely at intervals of not more than 18 inches. All joints shall be soldered or joined by equally effective connectors, which shall be water-resistant and corrosion-resistant.

Section 7. Standards for Specially Equipped School Buses:

(a) INTRODUCTION. Equipping buses to accommodate students with special needs is discretionary depending upon the needs of the passengers. While one bus may be fitted with a lift, another may have seat belts installed to secure child seats. Buses so equipped are not to be considered a separate class of school bus, but simply a regular school bus that is equipped for special accommodations.

The specifications in this section are intended to be supplementary to specifications in the chassis and body sections. In general, specially equipped buses shall meet all the requirements of the preceding sections plus those listed in this section. It is recognized by the entire industry that the field of special transportation is characterized by varied needs for individual cases and by a rapidly emerging technology for meeting those needs. A flexible, "common-sense" approach to the adoption and enforcement of specifications for these vehicles, therefore, is prudent.

The following standards address modifications as they pertain to school buses that, with standard seating arrangements prior to modification, would accommodate more than 10 persons (11 or more including the driver). If by addition of a power lift, mobile seating device positions or other modifications, the capacity is reduced, the intent of these standards is to have these vehicles be required to meet the same standards they would have had to meet prior to such modifications, and are included in all references to school buses and requirements for school buses which follow.

(b) DEFINITION. A specially equipped school bus is any school bus that is designed, equipped, or modified to accommodate students with special needs.

(c) GENERAL REQUIREMENTS.

(i) School buses designed for transporting students with special transportation needs shall comply with National Standards and with Federal Motor Vehicle Safety Standards applicable to their GVWR category.

(ii) Any school bus to be used for the transportation of children who are confined to a wheelchair or other mobile positioning device, or who require life support equipment which prohibits use of the regular service entrance, shall be equipped with a power lift, unless a ramp is needed for unusual circumstances related to passenger needs.

(d) AISLE. All school buses equipped with a power lift shall provide a 30" aisle leading from any wheelchair/mobility aid position to at least one emergency door and the lift area.

(e) COMMUNICATIONS. All school buses that are used to transport individuals with disabilities should be equipped with a two-way electronic voice communication system which can be used at any point in the vehicle's route.

(f) GLAZING. Tinted glazing may be installed in all doors, windows, and windshields consistent with federal, state, and local regulations.

(g) IDENTIFICATION. Buses with power lifts used for transporting individuals with disabilities shall display below the window line the International Symbol of Accessibility. No more than one emblem may be displayed on each side, the front or the rear of the bus. Such emblems shall be white on blue background, shall not exceed 12 inches in size, and shall be of a high-intensity reflectorized material meeting U.S. Department of Transportation's Federal Highway Administration (FHWA) FP-85 Standards.

(h) PASSENGER CAPACITY RATING. In determining the passenger capacity of a school bus for purposes other than actual passenger load (i.e., vehicle classification), any location in a school bus intended for securement of an occupied wheelchair/mobility aid during vehicle operations shall be regarded as four designated seating positions. Similarly, each lift area shall be regarded as four designated seating positions.

(i) POWER LIFTS.

(i) Power lift shall be located on the right side of the bus body when not extended.

(j) REGULAR SERVICE ENTRANCE.

(i) On power-lift equipped vehicles, step shall be the full width of the stepwell, excluding the thickness of doors in open position.

(ii) A suitable device shall be provided to assist passengers during entry or egress. This device shall allow for easy grasping or holding and shall have no openings or pinch points that might entangle clothing, accessories or limbs.

(k) RESTRAINING DEVICES.

(i) On power-lift equipped vehicles, seat frames may be equipped with attachments or devices to which belts, restraining harnesses or other devices may be attached. Attachment framework or anchorage devices, if installed, shall conform to FMVSS 210.

(ii) Seat belt assemblies, if installed, shall conform to FMVSS 209.

(iii) Child restraint systems, which are used to facilitate the transportation of children who in other modes of transportation would be required to use a child, infant, or booster seat, shall conform to FMVSS 213 and 222.

(l) SEATING ARRANGEMENTS.

(i) Flexibility in seat spacing to accommodate special devices shall be permitted to meet passenger requirements. All seating shall be forward facing.

(ii) All restraining barriers and passenger seats shall be constructed with materials that enable them to meet the criteria of the *School Bus Seat Upholstery Fire Block Test*.

(m) SECUREMENT AND RESTRAINT SYSTEM FOR WHEELCHAIR/MOBILITY AID AND OCCUPANT. -- For purposes of

better understanding the various aspects and components of this section, the term "securement" or phrase "securement system" is used exclusively in reference to the device(s) which secure the wheelchair/mobility aid. The term "restraint" or phrase "restraint system" is used exclusively in reference to the device(s) used to restrain the occupant of the wheelchair/ mobility aid. The phrase "securement and restraint system" is used to refer to the total system that secures and restrains both the wheelchair/mobility aid and the occupant.

(i) Securement and restraint system-general

(A) The Wheelchair/Mobility Aid Securement and Occupant Restraint System shall be designed, installed, and operated to accommodate passengers in a forward-facing orientation within the bus and shall comply with all applicable requirements of FMVSS 222. Gurney-type devices shall be secured parallel to the side of each bus.

(B) The securement and restraint system, including the system track, floor plates, pockets, or other anchorages shall be provided by the same manufacturer, or be certified to be compatible by manufacturers of all equipment systems used.

(C) When a wheelchair/mobility aid securement device and an occupant restraint share a common anchorage, including occupant restraint designs that attach the occupant restraint to the securement device or the wheelchair/mobility aid, the anchorage shall be capable of withstanding the loads of both the securement device and occupant restraint applied simultaneously, in accordance with FMVSS 222.

(D) When a wheelchair/mobility aid securement device (webbing or strap assembly) is shared with an occupant restraint, the wheelchair/ mobility aid securement device (webbing or strap assembly) shall be capable of withstanding a force twice the amount as specified in section 4.4(a) of FMVSS 209. (See sections ii and iii of this section.)

(E) The bus body floor and sidewall structures where the securement and restraint system anchorages are attached shall have equal or greater strength than the load requirements of the system(s) being installed.

(F) The occupant restraint system shall be designed to be attached to the bus body either directly or in combination with the wheelchair/mobility aid securement system, by a method which prohibits the transfer of weight or force from the wheelchair/mobility aid to the occupant in the event of an impact.

(G) When an occupied wheelchair/mobility aid is secured in accordance with the manufacturer's instructions, the securement and restraint system shall limit the movement of the occupied wheelchair/mobility aid to no more than 2" in any direction under normal driving conditions.

(H) The securement and restraint system shall incorporate an identification scheme that will allow for the easy identification of the various components and their functions. It shall consist of one of the following, or combination thereof:

(I) The wheelchair/mobility aid securement (webbing or strap assemblies) and the occupant restraint belt assemblies shall be of contrasting color or color shade.

(II) The wheelchair/mobility aid securement device (webbing or strap assemblies) and occupant restraint belt assemblies shall be clearly marked to indicate the proper wheelchair orientation in the vehicle, and the name and location for each device or belt assembly, i.e., front, rear, lap belt, shoulder belt, etc.

(I) All attachment or coupling devices designed to be connected or disconnected frequently shall be accessible and operable without the use of tools or other mechanical assistance.

(J) All securement and restraint system hardware and components shall be free of sharp or jagged areas and shall be of a non-corrosive material or treated to resist corrosion in accordance with section 4.3(a)of FMVSS 209.

(K) The securement and restraint system shall be located and installed such that when an occupied

wheelchair/mobility aid is secured, it does not block access to the lift door.

(L) A device for storage of the securement and restraint system shall be provided. When the system is not in use, the storage device shall allow for clean storage of the system, shall keep the system securely contained within the passenger compartment, shall provide reasonable protection from vandalism, and shall enable the system to be readily accessed for use.

(M) The entire securement and restraint system, including the storage device, shall meet the flammability standards established in FMVSS 302.

(N) Each securement device (webbing or strap assembly) and restraint belt assembly shall be permanently and legibly marked or incorporate a non-removable label or tag which states that it conforms to all applicable FMVSS requirements, as well as, the current National Standards for School Buses. In addition, the system manufacturer, or an authorized representative, upon request by the original titled purchaser, shall provide a notarized Certificate of Conformance, either original or photocopied, which states that the wheelchair/mobility aid securement and occupant restraint system meets all of the requirements as specified in FMVSS 222 and the current National Standards for School Buses.

(O) The following information shall be provided with each vehicle equipped with a securement and restraint system:

(I) A phone number where information can be obtained about installation, repair, and parts. (Detailed written instructions and a parts list shall be available upon request).

(II) Detailed instructions regarding use, including a diagram showing the proper placement of the wheelchair/mobility aids and positioning of securement devices and occupant restraints, including correct belt angles.

(P) The system manufacturer shall make available training materials to ensure the proper use and maintenance of the wheelchair/mobility aid securement and

occupant restraint system. These may include instructional videos, classroom curriculum, system test results, or other related materials.

(ii) Wheelchair/mobility aid securement system

(A) Each securement system location shall consist of a minimum of four anchorage points. A minimum of two anchorage points shall be located in front of the wheelchair/mobility aid and a minimum of two anchorage points shall be located in the rear. The securement anchorages shall be attached to the floor of the vehicle and shall not interfere with passenger movement or present any hazardous condition.

(B) Each securement system location shall have a minimum clear floor area of 30" by 48". Additional floor area may be required for some applications. Consultation between the user and the manufacturer is recommended to ensure adequate area is provided.

(C) The securement system shall secure common wheelchair/mobility aids and shall be able to be attached easily by a person having average dexterity and who is familiar with the system and wheelchair/mobility aid.

(D) As installed, each securement anchorage shall be capable of withstanding a minimum force of 3,000 pounds (13,344 Newtons) when applied as specified in FMVSS 222. When more than one securement device shares a common anchorage, the anchorage shall be capable of withstanding the force indicated above, multiplied by the number of securement devices sharing that anchorage.

(E) Each securement device, if incorporating webbing or a strap assembly, shall comply with the requirements for Type 1 safety belt systems, in accordance with sections 4.2, 4.3, and 4.4(a) of FMVSS 209.

(F) The securement system shall secure the wheelchair/mobility aid in such a manner that the attachments or coupling hardware will not become detached when any wheelchair/mobility aid component deforms, when one or more tires deflate, and without intentional operation of a release mechanism (e.g., a spring clip on a securement hook).

(G) Each securement device (webbing or strap assembly) shall be capable of withstanding a minimum force of 2,500 pounds when tested in accordance with FMVSS 209.

(H) Each securement device (webbing or strap assembly) shall provide a means of adjustment, of manufacturer's design, to remove slack from the device or assembly.

(iii) Occupant restraint system

(A) A Type 2A occupant restraint system that meets all applicable requirements of FMVSSs 209 and 210 shall provide for restraint of the occupant.

(B) The occupant restraint system shall be made of materials that do not stain, soil, or tear an occupant's clothing, and which are resistant to water damage and fraying.

(C) Each restraint system location shall have not less than one anchorage, of manufacturer's design, for the upper end of the upper torso restraint.

(I) The anchorage for each occupant's upper torso restraint shall be capable of withstanding a minimum force of 1,500 pounds (6,672 Newtons) when applied as specified in FMVSS 222.

(D) Each wheelchair/mobility aid location shall have not less than two floor anchorage for the occupant pelvic and the connected upper torso restraint.

(I) Each floor anchorage shall be capable of withstanding a minimum force of 3,000 pounds (13,344 Newtons) when applied as specified in FMVSS 222.

(II) When more than one occupant restraint share a common anchorage, the anchorage shall be capable of withstanding a minimum force of 3,000 pounds (13,344 Newtons) multiplied by the number of occupant restraints sharing the common anchorage in accordance with FMVSS 222.

(E) Each floor and wall anchorage which secures the occupant restraint to the vehicle and which is not permanently attached, shall be of a "positive latch"

design, and shall not allow for any accidental disconnection.

(iv) Dynamic testing

(A) The wheelchair/mobility aid securement and occupant restraint system shall be subjected to, and successfully pass, a dynamic sled test at a minimum impact speed/deceleration of 30 mph/20g's.

(B) The dynamic test shall be performed by experienced personnel using an impact simulator with proven ability to provide reliable and accurate, with test results that can be replicated.

(C) The dynamic test shall be performed in accordance with the procedures set forth in Appendix A of SAE J2249 "Test for Frontal Impact Crash Worthiness."

(D) The wheelchair/mobility aid used for testing purposes shall be a rigid, reusable surrogate wheelchair that complies with the requirements of Appendix D of SAE J2249 "Specification for Surrogate Wheelchair."

(E) The dynamic test shall be performed using system assemblies, components and attaching hardware that are identical to the final installation in type, configuration and positioning. The body structure at the anchorage points may be simulated for the purpose of the sled test.

(F) When tested, the wheelchair/mobility aid securement and occupant restraint system shall pass the criteria specified in Section 6.2 of SAE J2249 "Performance Requirements of Frontal Sled Impact Test." Following is an abridged summary of the criteria.

(I) Retain the test dummy in the test wheelchair and on the test sled with the test wheelchair in an upright position.

(II) Not show any fragmentation or complete separation of any load carrying part.

(III) Not allow the horizontal excursions of the test dummy and the test wheelchair to exceed specified limits.

(IV) Prevent the test wheelchair from imposing forward loads on the test dummy.

(V) Allow removal of the test dummy and the test wheelchair, subsequent to the test, without the use of tools.

(n) SPECIAL LIGHT. Doorways in which lifts are installed, shall have, when lift is to be used, at least 2 foot-candles of illumination measured on the floor of the bus immediately adjacent to the lift, and on the lift, when deployed at the vehicle floor level.

(o) SPECIAL SERVICE ENTRANCE.

(i) Power lift equipped bodies shall have a special service entrance to accommodate the power lift.

Exception: If the lift is designed to operate within the regular service entrance, and is capable of stowing such that the regular service entrance is not blocked in any way, and that persons entering or exiting the bus are not impeded in any way, a special service entrance shall not be required.

(ii) The special service entrance and door shall be located on the right side of the bus and shall be designed so as not to obstruct the regular service entrance.

(iii) The opening may extend below the floor through the bottom of the body skirt. If such an opening is used, reinforcements shall be installed at the front and rear of the floor opening to support the floor and give the same strength as other floor openings.

(iv) A drip molding shall be installed above the opening to effectively divert water from entrance.

(v) Door posts and headers from entrance shall be reinforced sufficiently to provide support and strength equivalent to the areas of the side of the bus not used for special service entrance.

(p) SPECIAL SERVICE ENTRANCE DOORS.

(i) A single door or double doors may be used for the special service entrance.

(ii) A single door shall be hinged to the forward side of the entrance unless doing so would obstruct the regular service entrance. If, due to the above condition, the door is hinged to the rearward side of the doorway, the door shall utilize a safety mechanism which will prevent the door from swinging open should the primary door latch fail. If double doors are used the system shall be designed to prevent the door(s) from being blown open by the wind resistance created by the forward motion of the bus, and/or incorporate a safety mechanism to provide secondary protection should the primary latching mechanism(s) fail.

(iii) All doors shall have positive fastening devices to hold doors in the open position.

(iv) All doors shall be weather sealed.

(v) When manually operated dual doors are provided, the rear door shall have at least a one-point fastening device to the header. The forward-mounted door shall have at least three point fastening devices. One shall be to the header, one to the floor line of the body, and the other shall be into the rear door. The door and hinge mechanism shall be of a strength that is greater than or equivalent to the emergency exit door.

(vi) Door materials, panels and structural strength shall be equivalent to the conventional service and emergency doors. Color, rub rail extensions, lettering and other exterior features shall match adjacent sections of the body.

(vii) Each door shall have windows set in rubber which are visually similar in size and location to adjacent non-door windows. Glazing shall be of same type and tinting (if applicable) as standard fixed glass in other body locations.

(viii) Door(s) shall be equipped with a device that will actuate an audible or flashing signal located in the driver's compartment when door(s) is not securely closed and ignition is in "on" position.

(vix) A switch shall be installed so that the lifting mechanism will not operate when the lift platform door(s) is closed.

(x) Special service entrance doors shall be equipped with padding at the top edge of the door opening. Padding shall be at least 3" wide and 1" thick and extend the full width of the door opening.

(xi) Thermo glass is not required in this door regardless of the door's location.

(q) SUPPORT EQUIPMENT AND ACCESSORIES. Each bus which is set up to accommodate wheelchair/mobility aids or other assistive or restraint devices which utilize belts, shall contain at least one belt cutter properly secured in a location within reach of the driver while belted into his/her driver's seat. The belt cutter shall be durable and designed to eliminate the possibility of the operator or others being cut during use.

Section 8. <u>Approved Options:</u>

(a) There are some features that, while good, may not be needed on every school bus in Wyoming. Activity buses may need options that route buses do not and route buses vary due to the terrain they are operated on. In an effort to supply a safe bus in different circumstances, the following options are approved for use with reimbursement by the state:

- Air conditioning
- Air suspension
- Automatic tire chains
- Auxiliary heaters
- Bookracks
- Crossing arms (other than Type C)
- Engine Block Heater
- Flat floor (Special Needs Bus)
- Fuel door lock
- Heated steps
- Passenger reading lights
- Public address system
- Radiator shutters

- Rear air deflector
- Retarder
- Strobe light
- Tachometer (Type A, B buses)
- Thermo glass (additional)
- Transmission temperature gauge (Type A and B buses)
- Tinted windows
- Vandal Locks
- Under bus storage

In order to qualify for state reimbursement, a district must request and receive approval to purchase the options before a bus is ordered. In the event state reimbursement is denied, a district can still order the option, but must pay for it themselves.

Districts shall use an approved form to request the option and provide justification for the need for the option. The Department of Education will respond to the request within three weeks of receiving the request.

There are countless other options available from the various bus manufacturers. Districts are free to order and pay for any option that meets applicable Federal Motor Vehicle Safety Standards and is offered as an option by the original vehicle manufacturer.

Section 9. Multipurpose Passenger Vehicles (MPV):

(a) The body shall be of a closed intregal type.

(b) The wheelbase shall be 100 inches or more.

(c) Body shall be of all steel or of a metal at least equivalent in strength to steel.

(d) Body interior such as headliner, interior door and side panels shall be lined with a protective material.

(e) Each MPV shall be equipped with at least one UL-approved pressurized, dry chemical fire extinguisher complete with hose meeting the requirements in Section 6(r).

(h) Each MPV shall have a removable moisture-proof and dust-proof first aid kit meeting the requirements in Section 6(r).

(i) Each MPV shall have a removable and moisture-proof body fluid clean-up kit accessible to the driver. It shall be properly mounted and identified as a body fluid clean-up kit.

(j) Each MPV shall contain at least three (3) reflectorized triangle road-warning devices mounted in an accessible place. These devices must meet requirements in FMVSS 125.

(k) Color shall not be National School Bus Yellow, or any other yellow.

Section 10. New Technology and Equipment:

(a) It is the intent of this section to accommodate new technologies and equipment that will better facilitate the transportation of students. When a new technology, piece of equipment, or component is desired to be applied to the school bus, and it meets the following criteria, it may be acceptable.

(i) It (the technology, equipment or component) shall not compromise the effectiveness or integrity of any major safety system, unless it completely replaces the system. (Examples of safety systems include, but are not limited to, compartmentalization, the eight light warning system, emergency exit opportunity, and the uncluttered yellow color scheme.)

(ii) It shall not diminish the safe environment of the interior of the bus.

(iii) It shall not create additional risk to students who are boarding or exiting the bus or are in or near the school bus loading zone.

(iv) It shall not create undue additional activity and/or responsibility for the driver.

(v) It shall generally increase efficiency and/or safety of the bus, or generally provide for a safer or more pleasant experience for the occupants and

pedestrians in the vicinity of the bus, or generally assist the driver or make his/her many tasks easier to perform.

Section 11. **Alternative Fuels:**

(a) INTRODUCTION. This standard is designed to be used as an overview of the alternative fuels being utilized for school transportation. The standard is not designed to replace current applicable federal, state, manufacturing or safety standards that may exceed requirements within this standard. There will be advancements in engineering and improvements in equipment fabrication methods and operating practices that differ from those specifically called for in this standard. Such deviations or improvements may provide safety and may meet the intent of and be compatible with this standard. Entities wishing to purchase alternative fuel school buses should use this section only as a starting point. More detailed specifications, including specific design and performance criteria and safety standards, should be researched by prospective purchasers of alternative fuel school buses.

(b) GENERAL REQUIREMENTS.

(i) Alternative fuel school buses shall meet the following requirements:

(A) Chassis shall meet all standards previously mentioned in BUS CHASSIS STANDARDS.

(B) Chassis shall meet all applicable FMVSS standards.

(C) Fuel system integrity shall allow zero (0) leakage when impacted by a mobile barrier in accordance with test conditions specified in FMVSS 301 or FMVSS 303, as applicable.

(D) Original equipment manufacturers (OEMs) and conversion systems using compressed natural gas (CNG) shall comply with NFPA Standard 52 "Compressed Natural Gas Vehicular Fuel Systems" in effect at the time of installation. Fuel systems using liquefied petroleum gas (LPG) shall comply with the NFPA Standard 58 "Liquefied Petroleum Gases Engine Fuel Systems" in effect at the time of installation.

(E) All alternative fuel buses shall travel a loaded range of not less than 200 miles, except those powered by electricity which shall travel not less than 80 miles.

(F) Natural gas-powered buses shall be equipped with an interior/exterior gas detection system. All natural gas-powered buses shall be equipped with a fire detection and suppression system.

(G) All materials and assemblies used to transfer or store alternative fuels shall be installed outside the passenger/driver compartment.

(H) All Types C and D buses using alternative fuel shall meet the same base requirements of BUS CHASSIS STANDARDS for Power and Gradeability, i.e., at least one published net horsepower per each 185 pounds of GVWR.

(I) The total weight shall not exceed the GVWR when loaded to rated capacity.

(J) The manufacturer supplying the alternative fuel equipment must provide the owner and operator with adequate training and certification in fueling procedures, scheduled maintenance, troubleshooting, and repair of alternative fuel equipment.

(K) All fueling equipment shall be designed specifically for fueling motor vehicles and shall be certified by the manufacturer as meeting all applicable federal, state and industry standards.

(L) All onboard fuel supply containers shall meet all appropriate requirements of the ASME code, the DOT regulations, or applicable FMVSS and NFPA Standards.

(M) All fuel supply containers shall be securely mounted to withstand a static force of 8 times their weight in any direction.

(N) All safety devices that may discharge to the atmosphere shall be vented to the outside of the vehicle. The discharge line from the safety relief valve on all school buses shall be located in a manner appropriate to the characteristics of the alternative fuel. Discharge lines shall not pass through the passenger compartment. Discharge

lines shall be equipped with a device to prevent insects from entering and/or building nests.

(O) A positive quick acting (1/4 turn) shut-off control valve shall be installed in the gaseous fuel supply lines as close to the fuel supply containers as possible. The controls for this valve shall be placed in a location easily operable from the exterior of the vehicle. The location of the valve control shall be clearly marked on the exterior surface of the bus.

(P) A grounding system shall be required for grounding of the fuel system during maintenance related venting.